

TP Comenius

Practical work on water quality

Objectives : *Measure various parameters in waters of different origin and compare these waters, observe aquatic life microscopically .*

The measurements will be performed on three solutions :

- water from the tap.
- distilled water.
- water from a pond close to an agricultural area / farmed land.

Experience 1 : Measure the hardness of water.

Water is hard if it is loaded with Calcium and magnesium ions and soft if it is not.

- Dip a test strip in each watch glass containing the solutions.
- Observe the color appearing on each strip and compare it to the reference color.
- Record yours results and conclude.

Experience 2 : Test the presence of Calcium and Magnesium ions.

- Put a little of each solution in test tubes.
- Pour a few drops of ammonium oxalate in each test tube.
- Observe the appearance of a white precipitate which /that indicates the presence of calcium and magnesium ions.
- Record results and conclude .

Experience 3 : Test the presence of nitrate or nitrite ions.

The presence of these ions in water can be due to an excess of fertilizers or livestock manure. The standard for drinking water should not exceed 50 mg/L of nitrates.

- Use the test strips in watch glass containing the three solutions of water.
- Observe the color and compare them with the reference.

Record the results and conclude.

Experience 4 : Measure of the pH of solutions.

pH is a very important parameter for life, it can change with pollution of the environment (for example acid rain)

- Measure the pH of the three solutions in each solution of water with pH paper.
- Observe the resulting colors and note the results.
- Conclude.

Experience 5 : Observation under the microscope.

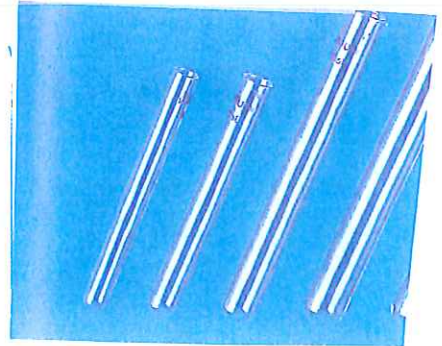
- Observe a drop of pond water under the microscope.
- Place a drop on a slide and put the cover slide.
- Draw your observation

Conclusion : All these parameters are important for water quality. Water is the most important = valuable resource on the planet and we have to take care of its quality.

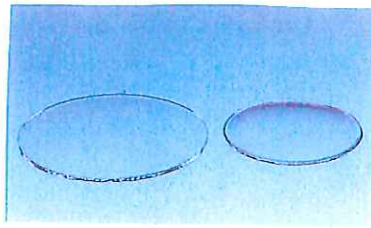
EQUIPMENT

Rack for test tube

Support pour tubes
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page 409



Watch glass



Dropper

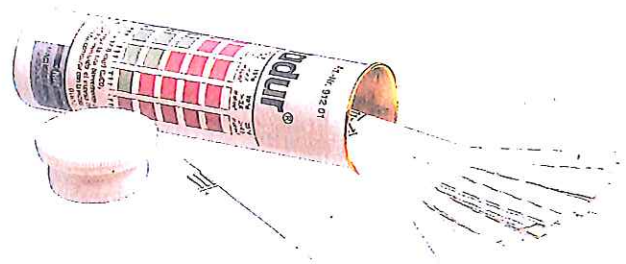


Distilled water

Tap water

Pond water

Ammonium oxalate



Test strips for determination of water hardness